



Appln. No. 09/155,676
Amendment Dated April 4, 2005
Reply to Office Action of June 2, 2004

Appendix A

Paper Copy of Sequence Listing and Disk



WALLACH21(INL2).ST25.txt
SEQUENCE LISTING

<110> WALLACH, David
MALININ, Nikolai
BOLDIN, Mark
KOVALENKO, Andrei
METT, Igor

<120> MODULATORS OF TNF RECEPTOR ASSOCIATED FACTOR (TRAF), THEIR
PREPARATION AND USE

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<141> 1999-01-04

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Glu Arg Leu Leu Pro Gln Val Glu Ala Ala Arg Lys Ala Ile Arg Ala
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Ala Gln Val Glu Arg Tyr Val Pro Glu His Glu Arg Cys Cys Trp Cys
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Leu Cys Cys Gly Cys Glu Val Arg Glu His Leu Ser His Gly Asn Leu
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Thr Val Leu Tyr Gly Gly Leu Leu Glu His Leu Ala Ser Pro Glu His
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Lys Lys Ala Thr Asn Lys Phe Trp Trp Glu Asn Lys Ala Glu Val Gln
 115 120 125

Met Lys Glu Lys Phe Leu Val Thr Pro Gln Asp Tyr Ala Arg Phe Lys
 130 135 140

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 Page 14

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 180 185 190
 Glu Glu Gly Ser Ser Ala Pro Arg Ser Trp Lys Gly Met Asn Ser Gln
 195 200 205
 Val Ala Ser Ser Leu Gln Gln Pro Ser Asn Leu Asp Leu Pro Pro Ala
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 Pro Glu Leu Asp Trp Met Glu Thr Gly Pro Ser Leu Thr Phe Ile Gly
 225 230 235 240
 His Gln Asp Ile Pro Gly Val Gly Asn Ile His Ser Gly Ala Thr Pro
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 Pro Trp Met Ile Gln Asp Glu Glu Tyr Ile Ala Gly Asn Gln Glu Ile
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 Gly Pro Ser Tyr Glu Glu Phe Leu Lys Glu Lys Glu Lys Gln Lys Leu
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 Glu Ser Ser Leu Ser Ile Pro Ser Thr Ser Arg Gly Gly Arg Thr His
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Phe

WALLACH21(INL2).ST25.txt

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WALLACH21(INL2).ST25.txt

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WALLACH21(INL2).ST25.txt

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Pro Val Phe Cys Gly Lys Trp Glu Ile Leu Asn Asp Val Ile Thr Lys
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Gly Thr Ala Lys Glu Gly Ser Glu Ala Gly Pro Ala Ala Ile Ser Ile
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Ile Ala Gln Ala Glu Cys Glu Asn Ser Gln Glu Phe Ser Pro Thr Phe
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Ser Glu Arg Ile Phe Ile Ala Gly Ser Lys Gln Tyr Ser Gln Ser Glu
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Ser Leu Asp Gln Ile Pro Asn Asn Val Ala His Ala Thr Glu Gly Lys
 115 120 125

Met Ala Arg Val Cys Trp Lys Gly Lys Arg Arg Ser Lys Ala Arg Lys
 Page 18

130

135

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Pro Val Gln Glu Asp Glu Ser Pro Leu Gly Ala Pro Tyr Val Arg Asn
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Thr Pro Gln Phe Thr Lys Pro Leu Lys Glu Pro Gly Leu Gly Gln Leu
195 200 205

Cys Phe Lys Gln Leu Gly Glu Gly Leu Arg Pro Ala Leu Pro Arg Ser
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Glu Leu His Lys Leu Ile Ser Pro Leu Gln Cys Leu Asn His Val Trp
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Lys Leu His His Pro Gln Asp Gly Gly Pro Leu Pro Leu Pro Thr His
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Pro Phe Pro Tyr Ser Arg Leu Pro His Pro Phe Pro Phe His Pro Leu
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Gln Pro Trp Lys Pro His Pro Leu Glu Ser Phe Leu Gly Lys Leu Ala
275 280 285

Cys Val Asp Ser Gln Lys Pro Leu Pro Asp Pro His Leu Ser Lys Leu
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340 345 350

Leu Thr Ser Leu Ala Lys Thr Trp Ala Ala Arg Gly Ser Arg Ser Arg
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Glu Pro Ser Pro Lys Thr Glu Asp Asn Glu Gly Val Leu Leu Thr Glu
370 375 380

Lys Leu Lys Pro Val Asp Tyr Glu Tyr Arg Glu Glu Val His Trp Ala
385 390 395 400

Thr His Gln Leu Arg Leu Gly Arg Gly Ser Phe Gly Glu Val His Arg

405

410

415

Met Glu Asp Lys Gln Thr Gly Phe Gln Cys Ala Val Lys Lys Val Arg
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Leu Glu Val Phe Arg Ala Glu Glu Leu Met Ala Cys Ala Gly Leu Thr
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Val Asn Ile Phe Met Glu Leu Leu Glu Gly Gly Ser Leu Gly Gln Leu
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Val Lys Glu Gln Gly Cys Leu Pro Glu Asp Arg Ala Leu Tyr Tyr Leu
 485 490 495

Gly Gln Ala Leu Glu Gly Leu Glu Tyr Leu His Ser Arg Arg Ile Leu
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His Gly Asp Val Lys Ala Asp Asn Val Leu Leu Ser Ser Asp Gly Ser
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His Ala Ala Leu Cys Asp Phe Gly His Ala Val Cys Leu Gln Pro Asp
 530 535 540

Gly Leu Gly Lys Ser Leu Leu Thr Gly Asp Tyr Ile Pro Gly Thr Glu
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Thr His Met Ala Pro Glu Val Val Leu Gly Arg Ser Cys Asp Ala Lys
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Val Asp Val Trp Ser Ser Cys Cys Met Met Leu His Met Leu Asn Gly
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Cys His Pro Trp Thr Gln Phe Phe Arg Gly Pro Leu Cys Leu Lys Ile
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Ala Ser Glu Pro Pro Pro Val Arg Glu Ile Pro Pro Ser Cys Ala Pro
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Leu Thr Ala Gln Ala Ile Gln Glu Gly Leu Arg Lys Glu Pro Ile His
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Arg Val Ser Ala Ala Glu Leu Gly Gly Lys Val Asn Arg Ala Leu Gln
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Gln Val Gly Gly Leu Lys Ser Pro Trp Arg Gly Glu Tyr Lys Glu Pro
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Arg His Pro Pro Pro Asn Gln Ala Asn Tyr His Gln Thr Leu His Ala

675

Gln Pro Arg Glu Leu Ser Pro Arg Ala Pro Gly Pro Arg Pro Ala Glu
690 695 700

Glu Thr Thr Gly Arg Ala Pro Lys Leu Gln Pro Pro Leu Pro Pro Glu
705 710 715 720

Pro Pro Glu Pro Asn Lys Ser Pro Pro Leu Thr Leu Ser Lys Glu Glu
725 730 735

Ser Gly Met Trp Glu Pro Leu Pro Leu Ser Ser Leu Glu Pro Ala Pro
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Ala Arg Asn Pro Ser Ser Pro Glu Arg Lys Ala Thr Val Pro Glu Gln
755 760 765

Glu Leu Gln Gln Leu Glu Ile Glu Leu Phe Leu Asn Ser Leu Ser Gln
770 775 780

Pro Phe Ser Leu Glu Glu Gln Glu Gln Ile Leu Ser Cys Leu Ser Ile
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805 810 815

Ser Gln Ser Ser Arg Asp Thr Leu Ser Ser Gly Val His Ser Trp Ser
820 825 830

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835 840 845

Gly Arg Pro Thr Asp Thr Pro Ser Tyr Phe Asn Gly Val Lys Val Gln
850 855 860

Ile Gln Ser Leu Asn Gly Glu His Leu His Ile Arg Glu Phe His Arg
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Val Lys Val Gly Asp Ile Ala Thr Gly Ile Ser Ser Gln Ile Pro Ala
885 890 895

Ala Ala Phe Ser Leu Val Thr Lys Asp Gly Gln Pro Val Arg Tyr Asp
900 905 910

Met Glu Val Pro Asp Ser Gly Ile Asp Leu Gln Cys Thr Leu Ala Pro
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Asn Arg Pro

945

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<400> 10
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WALLACH21(INL2).ST25.txt

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 His Phe Tyr Arg Cys Arg Pro Gln Glu Ser Gly Ile Leu Leu Asn Met
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 130 135 140
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 145 150 155 160
 Lys Lys Arg Met Ala Cys Lys Leu Ile Pro Val Asp Gln Phe Lys Pro
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 Ser Asp Val Glu Ile Gln Ala Cys Phe Arg His Glu Asn Ile Ala Glu
 180 185 190
 Leu Tyr Gly Ala Val Leu Trp Gly Asp Thr Val His Leu Phe Met Glu
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 Ala Gly Glu Gly Gly Ser Val Leu Glu Lys Leu Glu Ser Cys Gly Pro
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 Met Arg Glu Phe Glu Ile Ile Trp Val Thr Lys His Val Leu Lys Gly
 225 230 235 240
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 Gly Thr Glu Ile Tyr Met Ser Pro Glu Val Ile Leu Cys Arg Gly His
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 Ser Thr Lys Ala Asp Ile Tyr Ser Leu Gly Ala Thr Leu Ile His Met
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WALLACH21(INL2).ST25.txt

Gln Thr Gly Thr Pro Pro Trp Val Lys Arg Tyr Pro Arg Ser Ala Tyr
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Pro Ser Tyr Leu Tyr Ile Ile His Lys Gln Ala Pro Pro Leu Glu Asp
340 345 350

Ile Ala Gly Asp Cys Ser Pro Gly Met Arg Glu Leu Ile Glu Ala Ala
355 360 365

Leu Glu Arg Asn Pro Asn His Arg Pro Lys Ala Ala Asp Leu Leu Lys
370 375 380

His Glu Ala Leu Asn Pro Pro Arg Glu Asp Gln Pro Arg Cys Gln Ser
385 390 395 400

Leu Asp Ser Ala Leu Phe Asp Arg Lys Arg Leu Leu Ser Arg Lys Glu
405 410 415

Leu Glu Leu Pro Glu Asn Ile Ala Asp Ser Ser Cys Thr Gly Ser Thr
420 425 430

Glu Glu Ser Glu Val Leu Arg Arg Gln Arg Ser Leu Tyr Ile Asp Leu
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Gly Ala Leu Ala Gly Tyr Phe Asn Ile Val Arg Gly Pro Pro Thr Leu
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Glu Tyr Gly
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WALLACH21(INL2).ST25.txt

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 Pro Arg Gly Ala Phe Gly Lys Val Tyr Leu Ala Gln Asp Ile Lys Thr
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 Lys Lys Arg Met Ala Cys Lys Leu Ile Pro Val Asp Gln Phe Lys Pro
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 Ser Asp Val Glu Ile Gln Ala Cys Phe Arg His Glu Asn Ile Ala Glu
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 210 215 220
 Met Arg Glu Phe Glu Ile Ile Trp Val Thr Lys His Val Leu Lys Gly
 225 230 235 240
 Leu Asp Phe Leu His Ser Lys Lys Val Ile His His Asp Ile Lys Pro
 245 250 255
 Ser Asn Ile Val Phe Met Ser Thr Lys Ala Val Leu Val Asp Phe Gly
 260 265 270
 Leu Ser Val Gln Met Thr Glu Asp Val Tyr Pro Phe Lys Asp Leu Arg
 275 280 285
 Gly Thr Glu Ile Tyr Met Ser Pro Glu Val Ile Leu Cys Arg Gly His
 290 295 300
 Ser Thr Lys Ala Asp Ile Tyr Ser Leu Gly Ala Thr Leu Ile His Met
 305 310 315 320
 Gln Thr Gly Thr Pro Pro Trp Val Lys Arg Tyr Pro Arg Ser Ala Tyr
 325 330 335
 Pro Ser Tyr Leu Tyr Ile Ile His Lys Gln Ala Pro Pro Leu Glu Asp
 340 345 350

WALLACH21(INL2).ST25.txt

Ile Ala Asp Asp Cys Ser Pro Gly Met Arg Glu Leu Ile Glu Ala Ser
355 360 365

Leu Glu Arg Asn Pro Asn His Arg Pro Arg Ala Ala Asp Leu Leu Lys
370 375 380

His Glu Ala Leu Asn Pro Pro Arg Glu Asp Gln Pro Arg Cys Gln Ser
385 390 395 400

Leu Asp Ser Ala Leu Leu Glu Arg Lys Arg Leu Leu Ser Arg Lys Glu
405 410 415

Leu Glu Leu Pro Glu Asn Ile Ala Asp Ser Ser Cys Thr Gly Ser Thr
420 425 430

Glu Glu Ser Glu Met Leu Lys Arg Gln Arg Ser Leu Tyr Ile Asp Leu
435 440 445

Gly Ala Leu Ala Gly Tyr Phe Asn Leu Val Arg Gly Pro Pro Thr Leu
450 455 460

Glu Tyr Gly
465

<210> 14
<211> 947
<212> PRT
<213> Homo sapiens

<400> 14

Met Ala Val Met Glu Met Ala Cys Pro Gly Ala Pro Gly Ser Ala Val
1 5 10 15

Gly Gln Gln Lys Glu Leu Pro Lys Pro Lys Glu Lys Thr Pro Pro Leu
20 25 30

Gly Lys Lys Gln Ser Ser Val Tyr Lys Leu Glu Ala Val Glu Lys Ser
35 40 45

Pro Val Phe Cys Gly Lys Trp Glu Ile Leu Asn Asp Val Ile Thr Lys
50 55 60

Gly Thr Ala Lys Glu Gly Ser Glu Ala Gly Pro Ala Ala Ile Ser Ile
65 70 75 80

Ile Ala Gln Ala Glu Cys Glu Asn Ser Gln Glu Phe Ser Pro Thr Phe
85 90 95

Ser Glu Arg Ile Phe Ile Ala Gly Ser Lys Gln Tyr Ser Gln Ser Glu
100 105 110

WALLACH21(INL2).ST25.txt

Ser Leu Asp Gln Ile Pro Asn Asn Val Ala His Ala Thr Glu Gly Lys
 115 120 125
 Met Ala Arg Val Cys Trp Lys Gly Lys Arg Arg Ser Lys Ala Arg Lys
 130 135 140
 Lys Arg Lys Lys Lys Ser Ser Lys Ser Leu Ala His Ala Gly Val Ala
 145 150 155 160
 Leu Ala Lys Pro Leu Pro Arg Thr Pro Glu Gln Glu Ser Cys Thr Ile
 165 170 175
 Pro Val Gln Glu Asp Glu Ser Pro Leu Gly Ala Pro Tyr Val Arg Asn
 180 185 190
 Thr Pro Gln Phe Thr Lys Pro Leu Lys Glu Pro Gly Leu Gly Gln Leu
 195 200 205
 Cys Phe Lys Gln Leu Gly Glu Gly Leu Arg Pro Ala Leu Pro Arg Ser
 210 215 220
 Glu Leu His Lys Leu Ile Ser Pro Leu Gln Cys Leu Asn His Val Trp
 225 230 235 240
 Lys Leu His His Pro Gln Asp Gly Gly Pro Leu Pro Leu Pro Thr His
 245 250 255
 Pro Phe Pro Tyr Ser Arg Leu Pro His Pro Phe Pro Phe His Pro Leu
 260 265 270
 Gln Pro Trp Lys Pro His Pro Leu Glu Ser Phe Leu Gly Lys Leu Ala
 275 280 285
 Cys Val Asp Ser Gln Lys Pro Leu Pro Asp Pro His Leu Ser Lys Leu
 290 295 300
 Ala Cys Val Asp Ser Pro Lys Pro Leu Pro Gly Pro His Leu Glu Pro
 305 310 315 320
 Ser Cys Leu Ser Arg Gly Ala His Glu Lys Phe Ser Val Glu Glu Tyr
 325 330 335
 Leu Val His Ala Leu Gln Gly Ser Val Ser Ser Ser Gln Ala His Ser
 340 345 350
 Leu Thr Ser Leu Ala Lys Thr Trp Ala Ala Arg Gly Ser Arg Ser Arg
 355 360 365
 Glu Pro Ser Pro Lys Thr Glu Asp Asn Glu Gly Val Leu Leu Thr Glu
 370 375 380

WALLACH21(INL2).ST25.txt

Lys Leu Lys Pro Val Asp Tyr Glu Tyr Arg Glu Glu Val His Trp Ala
 385 390 395 400
 Thr His Gln Leu Arg Leu Gly Arg Gly Ser Phe Gly Glu Val His Arg
 405 410 415
 Met Glu Asp Lys Gln Thr Gly Phe Gln Cys Ala Val Lys Lys Val Arg
 420 425 430
 Leu Glu Val Phe Arg Ala Glu Glu Leu Met Ala Cys Ala Gly Leu Thr
 435 440 445
 Ser Pro Arg Ile Val Pro Leu Tyr Gly Ala Val Arg Glu Gly Pro Trp
 450 455 460
 Val Asn Ile Phe Met Glu Leu Leu Glu Gly Gly Ser Leu Gly Gln Leu
 465 470 475 480
 Val Lys Glu Gln Gly Cys Leu Pro Glu Asp Arg Ala Leu Tyr Tyr Leu
 485 490 495
 Gly Gln Ala Leu Glu Gly Leu Glu Tyr Leu His Ser Arg Arg Ile Leu
 500 505 510
 His Gly Asp Val Lys Ala Asp Asn Val Leu Leu Ser Ser Asp Gly Ser
 515 520 525
 His Ala Ala Leu Cys Asp Phe Gly His Ala Val Cys Leu Gln Pro Asp
 530 535 540
 Gly Leu Gly Lys Ser Leu Leu Thr Gly Asp Tyr Ile Pro Gly Thr Glu
 545 550 555 560
 Thr His Met Ala Pro Glu Val Val Leu Gly Arg Ser Cys Asp Ala Lys
 565 570 575
 Val Asp Val Trp Ser Ser Cys Cys Met Met Leu His Met Leu Asn Gly
 580 585 590
 Cys His Pro Trp Thr Gln Phe Phe Arg Gly Pro Leu Cys Leu Lys Ile
 595 600 605
 Ala Ser Glu Pro Pro Pro Val Arg Glu Ile Pro Pro Ser Cys Ala Pro
 610 615 620
 Leu Thr Ala Gln Ala Ile Gln Glu Gly Leu Arg Lys Glu Pro Ile His
 625 630 635 640
 Arg Val Ser Ala Ala Glu Leu Gly Gly Lys Val Asn Arg Ala Leu Gln
 645 650 655

WALLACH21(INL2).ST25.txt

Gln Val Gly Gly Leu Lys Ser Pro Trp Arg Gly Glu Tyr Lys Glu Pro
660 665 670

Arg His Pro Pro Pro Asn Gln Ala Asn Tyr His Gln Thr Leu His Ala
675 680 685

Gln Pro Arg Glu Leu Ser Pro Arg Ala Pro Gly Pro Arg Pro Ala Glu
690 695 700

Glu Thr Thr Gly Arg Ala Pro Lys Leu Gln Pro Pro Leu Pro Pro Glu
705 710 715 720

Pro Pro Glu Pro Asn Lys Ser Pro Pro Leu Thr Leu Ser Lys Glu Glu
725 730 735

Ser Gly Met Trp Glu Pro Leu Pro Leu Ser Ser Leu Glu Pro Ala Pro
740 745 750

Ala Arg Asn Pro Ser Ser Pro Glu Arg Lys Ala Thr Val Pro Glu Gln
755 760 765

Glu Leu Gln Gln Leu Glu Ile Glu Leu Phe Leu Asn Ser Leu Ser Gln
770 775 780

Pro Phe Ser Leu Glu Glu Gln Glu Gln Ile Leu Ser Cys Leu Ser Ile
785 790 795 800

Asp Ser Leu Ser Leu Ser Asp Asp Ser Glu Lys Asn Pro Ser Lys Ala
805 810 815

Ser Gln Ser Ser Arg Asp Thr Leu Ser Ser Gly Val His Ser Trp Ser
820 825 830

Ser Gln Ala Glu Ala Arg Ser Ser Ser Trp Asn Met Val Leu Ala Arg
835 840 845

Gly Arg Pro Thr Asp Thr Pro Ser Tyr Phe Asn Gly Val Lys Val Gln
850 855 860

Ile Gln Ser Leu Asn Gly Glu His Leu His Ile Arg Glu Phe His Arg
865 870 875 880

Val Lys Val Gly Asp Ile Ala Thr Gly Ile Ser Ser Gln Ile Pro Ala
885 890 895

Ala Ala Phe Ser Leu Val Thr Lys Asp Gly Gln Pro Val Arg Tyr Asp
900 905 910

Met Glu Val Pro Asp Ser Gly Ile Asp Leu Gln Cys Thr Leu Ala Pro
915 920 925

WALLACH21(INL2).ST25.txt

Asp Gly Ser Phe Ala Trp Ser Trp Arg Val Lys His Gly Gln Leu Glu
930 935 940

Asn Arg Pro
945

<210> 15
<211> 688
<212> PRT
<213> Homo sapiens
<400> 15

Thr Leu Thr His Thr Thr Ser Leu Phe Ala Pro Pro Asn Leu Ser Pro
1 5 10 15

Met Gln Asp Phe Ile Gly Ser Val Arg Arg Ser Leu Val Phe Lys Gln
20 25 30

Ser Gly Asp Phe Asp Thr Gly Ala Ala Gly Val Gly Ser Gly Phe Gly
35 40 45

Gly Phe Val Glu Lys Leu Gly Ser Ser Ile Arg Lys Ser Ser Ile Gly
50 55 60

Ile Phe Ser Lys Ala His Val Pro Ala Leu Pro Ser Ile Ser Lys Ala
65 70 75 80

Glu Leu Pro Ala Lys Ala Arg Lys Asp Asp Thr Pro Pro Ile Arg Trp
85 90 95

Arg Lys Gly Glu Met Ile Gly Cys Gly Ala Phe Gly Arg Val Tyr Met
100 105 110

Gly Met Asn Val Asp Ser Gly Glu Leu Leu Ala Ile Lys Glu Val Ser
115 120 125

Ile Ala Met Asn Gly Ala Ser Arg Glu Arg Ala Gln Ala His Val Arg
130 135 140

Glu Leu Glu Glu Glu Val Asn Leu Leu Lys Asn Leu Ser His Pro Asn
145 150 155 160

Ile Val Arg Tyr Leu Gly Thr Ala Arg Glu Ala Gly Ser Leu Asn Ile
165 170 175

Leu Leu Glu Phe Val Pro Gly Gly Ser Ile Ser Ser Leu Leu Gly Lys
180 185 190

Phe Gly Ser Phe Pro Glu Ser Val Ile Arg Met Tyr Thr Lys Gln Leu
195 200 205

Leu Leu Gly Leu Glu Tyr Leu His Lys Asn Gly Ile Met His Arg Asp
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215

Ile Lys Gly Ala Asn Ile Leu Val Asp Asn Lys Gly Cys Ile Lys Leu
225 230 235 240

Ala Asp Phe Gly Ala Ser Lys Lys Val Val Glu Leu Ala Thr Met Thr
245 250 255

Gly Ala Lys Ser Met Lys Gly Thr Pro Tyr Trp Met Ala Pro Glu Val
260 265 270

Ile Leu Gln Thr Gly His Ser Phe Ser Ala Asp Ile Trp Ser Val Gly
275 280 285

Cys Thr Ile Ile Glu Met Ala Thr Gly Lys Pro Pro Trp Ser Gln Gln
290 295 300

Tyr Gln Glu Val Ala Ala Leu Phe His Ile Gly Thr Thr Lys Ser His
305 310 315 320

Pro Pro Ile Pro Glu His Leu Ser Ala Glu Ser Lys Asp Phe Leu Leu
325 330 335

Lys Cys Leu Gln Lys Glu Pro His Leu Arg His Ser Ala Ser Asn Leu
340 345 350

Leu Gln His Pro Phe Val Thr Ala Glu His Gln Glu Ala Arg Pro Phe
355 360 365

Leu Arg Ser Ser Phe Met Gly Asn Pro Glu Asn Met Ala Ala Gln Arg
370 375 380

Met Asp Val Arg Thr Ser Ile Ile Pro Asp Met Arg Ala Ser Cys Asn
385 390 395 400

Gly Leu Lys Asp Val Cys Gly Val Ser Ala Val Arg Cys Ser Thr Val
405 410 415

Tyr Pro Glu Asn Ser Leu Gly Lys Glu Ser Leu Trp Lys Leu Gly Asn
420 425 430

Ser Asp Asp Asp Met Cys Gln Met Asp Asn Asp Asp Phe Met Phe Gly
435 440 445

Ala Ser Val Lys Cys Ser Ser Asp Leu His Ser Pro Ala Asn Tyr Lys
450 455 460

Ser Phe Asn Pro Met Cys Glu Pro Asp Asn Asp Trp Pro Cys Lys Phe
465 470 475 480

Asp Glu Ser Pro Glu Leu Thr Lys Ser Gln Ala Asn Leu His Tyr Asp
Page 31

485

490

495

Gln Ala Thr Ile Lys Pro Thr Asn Asn Pro Ile Met Ser Tyr Lys Glu
 500 505 510

Asp Leu Ala Phe Thr Phe Pro Ser Gly Gln Ser Ala Ala Glu Asp Asp
 515 520 525

Asp Glu Leu Thr Glu Ser Lys Ile Arg Ala Phe Leu Asp Glu Lys Ala
 530 535 540

Met Asp Leu Lys Lys Leu Gln Thr Pro Leu Tyr Glu Gly Phe Tyr Asn
 545 550 555 560

Ser Leu Asn Val Ser Ser Thr Pro Ser Pro Val Gly Thr Gly Asn Lys
 565 570 575

Glu Asn Val Pro Ser Asn Ile Asn Leu Pro Pro Lys Ser Arg Ser Pro
 580 585 590

Lys Arg Met Leu Ser Arg Arg Leu Ser Thr Ala Ile Glu Gly Ala Cys
 595 600 605

Ala Pro Ser Pro Val Thr His Ser Lys Arg Ile Ser Asn Ile Gly Gly
 610 615 620

Leu Asn Gly Glu Ala Ile Gln Glu Ala Gln Leu Pro Arg His Asn Glu
 625 630 635 640

Trp Lys Asp Leu Leu Gly Ser Gln Arg Glu Ala Val Asn Ser Ser Phe
 645 650 655

Ser Glu Arg Gln Arg Arg Trp Lys Glu Glu Leu Asp Glu Glu Leu Gln
 660 665 670

Arg Lys Arg Glu Ile Met Arg Gln Ala Val Asn Leu Ser Pro Pro Lys
 675 680 685

<210> 16
 <211> 659
 <212> PRT
 <213> Homo sapiens

<400> 16

Met Glu Tyr Tyr Thr Ser Lys Glu Val Ala Glu Trp Leu Lys Ser Ile
 1 5 10 15

Gly Leu Glu Lys Tyr Ile Glu Gln Phe Ser Gln Asn Asn Ile Glu Gly
 20 25 30

Arg His Leu Asn His Leu Thr Leu Pro Leu Leu Lys Asp Leu Gly Ile
 35 40 45

WALLACH21(INL2).ST25.txt

Glu Asn Thr Ala Lys Gly Lys Gln Phe Leu Lys Gln Arg Asp Tyr Leu
 50 55 60
 Arg Glu Phe Pro Arg Pro Cys Ile Leu Arg Phe Ile Ala Cys Asn Gly
 65 70 75 80
 Gln Thr Arg Ala Val Gln Ser Arg Gly Asp Tyr Gln Lys Thr Leu Ala
 85 90 95
 Ile Ala Leu Lys Lys Phe Ser Leu Glu Asp Ala Ser Lys Phe Ile Val
 100 105 110
 Cys Val Ser Gln Ser Ser Arg Ile Lys Leu Ile Thr Glu Glu Glu Phe
 115 120 125
 Lys Gln Ile Cys Phe Asn Ser Ser Ser Pro Glu Arg Asp Arg Leu Ile
 130 135 140
 Ile Val Pro Lys Glu Lys Pro Cys Pro Ser Phe Glu Asp Leu Arg Arg
 145 150 155 160
 Ser Trp Glu Ile Glu Leu Ala Gln Pro Ala Ala Leu Ser Ser Gln Ser
 165 170 175
 Ser Leu Ser Pro Lys Leu Ser Ser Val Leu Pro Thr Ser Thr Gln Lys
 180 185 190
 Arg Ser Val Arg Ser Asn Asn Ala Lys Pro Phe Glu Ser Tyr Gln Arg
 195 200 205
 Pro Pro Ser Glu Leu Ile Asn Ser Arg Ile Ser Asp Phe Phe Pro Asp
 210 215 220
 His Gln Pro Lys Leu Leu Glu Lys Thr Ile Ser Asn Ser Leu Arg Arg
 225 230 235 240
 Asn Leu Ser Ile Arg Thr Ser Gln Gly His Asn Leu Gly Asn Phe Gly
 245 250 255
 Gln Glu Ile Leu Pro Arg Ser Ser Arg Arg Ala Arg Pro Ser Glu Leu
 260 265 270
 Val Cys Pro Leu Ser Ser Leu Arg Ile Ser Val Ala Glu Asp Val Asn
 275 280 285
 Arg Leu Pro Arg Ile Asp Arg Gly Phe Asp Pro Pro Leu Thr Val Ser
 290 295 300
 Ser Thr Gln Arg Ile Ser Arg Pro Pro Ser Leu Gln Lys Ser Ile Thr
 305 310 315 320

WALLACH21(INL2).ST25.txt

Met Val Gly Val Glu Pro Leu Tyr Gln Ser Asn Gly Asn Glu Lys Ser
325 330 335

Ser Lys Tyr Asn Val Phe Ser Glu Ser Ala His Gly Asn His Gln Val
340 345 350

Leu Ser Phe Ser Pro Gly Ser Ser Pro Ser Phe Ile Glu Gln Pro Ser
355 360 365

Pro Ile Ser Pro Thr Ser Thr Thr Ser Glu Asp Thr Asn Thr Leu Glu
370 375 380

Glu Asp Thr Asp Asp Gln Ser Ile Lys Trp Ile Arg Gly Ala Leu Ile
385 390 395 400

Gly Ser Gly Ser Phe Gly Gln Val Tyr Leu Gly Met Asn Ala Ser Ser
405 410 415

Gly Glu Leu Met Ala Val Lys Gln Val Ile Leu Asp Ser Val Ser Glu
420 425 430

Ser Lys Asp Arg His Ala Lys Leu Leu Asp Ala Leu Ala Gly Glu Ile
435 440 445

Ala Leu Leu Gln Glu Leu Ser His Glu His Ile Val Gln Tyr Leu Gly
450 455 460

Ser Asn Leu Asn Ser Asp His Leu Asn Ile Phe Leu Glu Tyr Val Pro
465 470 475 480

Gly Gly Ser Val Ala Gly Leu Leu Thr Met Tyr Gly Ser Phe Glu Glu
485 490 495

Thr Leu Val Lys Asn Phe Ile Lys Gln Thr Leu Lys Gly Leu Glu Tyr
500 505 510

Leu His Ser Arg Gly Ile Val His Arg Asp Ile Lys Gly Ala Asn Ile
515 520 525

Leu Val Asp Asn Lys Gly Lys Ile Lys Ile Ser Asp Phe Gly Ile Ser
530 535 540

Lys Lys Leu Glu Leu Asn Ser Thr Ser Thr Lys Thr Gly Gly Ala Arg
545 550 555 560

Pro Ser Phe Gln Gly Ser Ser Phe Trp Met Ala Pro Glu Val Val Lys
565 570 575

Gln Thr Met His Thr Glu Lys Thr Asp Ile Trp Ser Leu Gly Cys Leu
580 585 590

WALLACH21(INL2).ST25.txt

Val Ile Glu Met Leu Thr Ser Lys His Pro Tyr Pro Asn Cys Asp Gln
595 600 605

Met Gln Ala Ile Phe Arg Ile Gly Glu Asn Ile Leu Pro Glu Phe Pro
610 615 620

Ser Asn Ile Ser Ser Ser Ala Ile Asp Phe Leu Glu Lys Thr Phe Ala
625 630 635 640

Ile Asp Cys Asn Leu Arg Pro Thr Ala Ser Glu Leu Leu Ser His Pro
645 650 655

Phe Val Ser

<210> 17
<211> 717
<212> PRT
<213> Homo sapiens
<400> 17

Met Glu Gln Thr Gln Thr Ala Glu Gly Thr Asp Leu Leu Ile Gly Asp
1 5 10 15

Glu Lys Thr Asn Asp Leu Pro Phe Val Gln Leu Phe Leu Glu Glu Ile
20 25 30

Gly Cys Thr Gln Tyr Leu Asp Ser Phe Ile Gln Cys Asn Leu Val Thr
35 40 45

Glu Glu Glu Ile Lys Tyr Leu Asp Lys Asp Ile Leu Ile Ala Leu Gly
50 55 60

Val Asn Lys Ile Gly Asp Arg Leu Lys Ile Leu Arg Lys Ser Lys Ser
65 70 75 80

Phe Gln Arg Asp Lys Arg Ile Glu Gln Val Asn Arg Leu Lys Asn Leu
85 90 95

Met Glu Lys Val Ser Ser Leu Ser Thr Ala Thr Leu Ser Met Asn Ser
100 105 110

Glu Leu Ile Pro Glu Lys His Cys Val Ile Phe Ile Leu Asn Asp Gly
115 120 125

Ser Ala Lys Lys Val Asn Val Asn Gly Cys Phe Asn Ala Asp Ser Ile
130 135 140

Lys Lys Arg Leu Ile Arg Arg Leu Pro His Glu Leu Leu Ala Thr Asn
145 150 155 160

WALLACH21(INL2).ST25.txt

Ser Asn Gly Glu Val Thr Lys Met Val Gln Asp Tyr Asp Val Phe Val
 165 170 175
 Leu Asp Tyr Thr Lys Asn Val Leu His Leu Leu Tyr Asp Val Glu Leu
 180 185 190
 Val Thr Ile Cys His Ala Asn Asp Arg Val Glu Lys Asn Arg Leu Ile
 195 200 205
 Phe Val Ser Lys Asp Gln Thr Pro Ser Asp Lys Ala Ile Ser Thr Ser
 210 215 220
 Lys Lys Leu Tyr Leu Arg Thr Leu Ser Ala Leu Ser Gln Val Gly Pro
 225 230 235
 Ser Ser Ser Asn Leu Leu Ala Gln Asn Lys Gly Ile Ser His Asn Asn
 245 250 255
 Ala Glu Gly Lys Leu Arg Ile Asp Asn Thr Glu Lys Asp Arg Ile Arg
 260 265 270
 Gln Ile Phe Asn Gln Arg Pro Pro Ser Glu Phe Ile Ser Thr Asn Leu
 275 280 285
 Ala Gly Tyr Phe Pro His Thr Asp Met Lys Arg Leu Gln Lys Thr Met
 290 295 300
 Arg Glu Ser Phe Arg His Ser Ala Arg Leu Ser Ile Ala Gln Arg Arg
 305 310 315 320
 Pro Leu Ser Ala Glu Ser Asn Asn Ile Gly Asp Ile Leu Leu Lys His
 325 330 335
 Ser Asn Ala Val Asp Met Ala Leu Leu Gln Gly Leu Asp Gln Thr Arg
 340 345 350
 Leu Ser Ser Lys Leu Asp Thr Thr Lys Ile Pro Lys Leu Ala His Lys
 355 360 365
 Arg Pro Glu Asp Asn Asp Ala Ile Ser Asn Gln Leu Glu Leu Leu Ser
 370 375 380
 Val Glu Ser Gly Glu Glu Glu Asp His Asp Phe Phe Gly Glu Asp Ser
 385 390 395 400
 Asp Ile Val Ser Leu Pro Thr Lys Ile Ala Thr Pro Lys Asn Trp Leu
 405 410 415
 Lys Gly Ala Cys Ile Gly Ser Gly Ser Phe Gly Ser Val Tyr Leu Gly
 420 425 430

WALLACH21(INL2).ST25.txt

Met Asn Ala His Thr Gly Glu Leu Met Ala Val Lys Gln Val Glu Ile
 435 440 445
 Lys Asn Asn Asn Ile Gly Val Pro Thr Asp Asn Asn Lys Gln Ala Asn
 450 455 460
 Ser Asp Glu Asn Asn Glu Gln Glu Glu Gln Gln Glu Lys Ile Glu Asp
 465 470 475 480
 Val Gly Ala Val Ser His Pro Lys Thr Asn Gln Asn Ile His Arg Lys
 485 490 495
 Met Val Asp Ala Leu Gln His Glu Met Asn Leu Leu Lys Glu Leu His
 500 505 510
 His Glu Asn Ile Val Thr Tyr Tyr Gly Ala Ser Gln Glu Gly Gly Asn
 515 520 525
 Leu Asn Ile Phe Leu Glu Tyr Val Pro Gly Gly Ser Val Ser Ser Met
 530 535 540
 Leu Asn Asn Tyr Gly Pro Phe Glu Glu Ser Leu Ile Thr Asn Phe Thr
 545 550 555 560
 Arg Gln Ile Leu Ile Gly Val Ala Tyr Leu His Lys Lys Asn Ile Ile
 565 570 575
 His Arg Asp Ile Lys Gly Ala Asn Ile Leu Ile Asp Ile Lys Gly Cys
 580 585 590
 Val Lys Ile Thr Asp Phe Gly Ile Ser Lys Lys Leu Ser Pro Leu Asn
 595 600 605
 Lys Lys Gln Asn Lys Arg Ala Ser Leu Gln Gly Ser Val Phe Trp Met
 610 615 620
 Ser Pro Glu Val Val Lys Gln Thr Ala Thr Thr Ala Lys Ala Asp Ile
 625 630 635 640
 Trp Ser Thr Gly Cys Val Val Ile Glu Met Phe Thr Gly Lys His Pro
 645 650 655
 Phe Pro Asp Phe Ser Gln Met Gln Ala Ile Phe Lys Ile Gly Thr Asn
 660 665 670
 Thr Thr Pro Glu Ile Pro Ser Trp Ala Thr Ser Glu Gly Lys Asn Phe
 675 680 685
 Leu Arg Lys Ala Phe Glu Leu Asp Tyr Gln Tyr Arg Pro Ser Ala Leu
 690 695 700

WALLACH21(INL2).ST25.txt

Glu Leu Leu Gln His Pro Trp Leu Asp Ala His Ile Ile
705 710 715

<210> 18
<211> 1478
<212> PRT
<213> Homo sapiens

<400> 18

Met Pro Phe Leu Arg Lys Ile Ala Gly Thr Ala His Thr His Ser Arg
1 5 10 15

Ser Asp Ser Asn Ser Ser Val Lys Phe Gly His Gln Pro Thr Ser Ser
20 25 30

Val Ala Ser Thr Lys Ser Ser Ser Lys Ser Pro Arg Ala Thr Ser Arg
35 40 45

Lys Ser Ile Tyr Asp Asp Ile Arg Ser Gln Phe Pro Asn Leu Thr Pro
50 55 60

Asn Ser Thr Ser Ser Gln Phe Tyr Glu Ser Thr Pro Val Ile Glu Gln
65 70 75 80

Ser Phe Asn Trp Thr Thr Asp Asp His Ile Ser Ala Gly Thr Leu Glu
85 90 95

Asn Pro Thr Ser Glu Thr Asn Ser Ser Tyr Lys Asn Asp Asn Gly Pro
100 105 110

Ser Ser Leu Ser Asp Ser Arg Lys Ser Ser Gly Gly Asn Ser Val Asn
115 120 125

Ser Leu Ser Phe Asp Lys Leu Ile Leu Ser Trp Asp Pro Thr Asp Pro
130 135 140

Asp Glu Trp Thr Met His Arg Val Thr Ser Trp Phe Lys Phe His Asp
145 150 155 160

Phe Pro Glu Ser Trp Ile Leu Phe Phe Lys Lys His Gln Leu Phe Gly
165 170 175

His Arg Phe Ile Lys Leu Leu Ala Tyr Asp Asn Phe Ala Val Tyr Glu
180 185 190

Lys Tyr Leu Pro Gln Thr Lys Thr Ala Ser Tyr Thr Arg Phe Gln Gln
195 200 205

Leu Leu Lys Lys Thr Met Thr Lys Asn Val Thr Asn Ser His Ile Arg
210 215 220

WALLACH21(INL2).ST25.txt

Gln Lys Ser Ala Ser Lys Leu Lys Ser Ser Arg Ser Ser Ser Glu Ser
 225 230 235 240
 Ile Lys Ser Lys Leu Lys Asn Ser Lys Ser Gln Glu Asp Ile Ser Asn
 245 250 255
 Ser Arg Ser Thr Ser Glu Ser Ala Leu Ser Pro Thr Lys Ser Gly Pro
 260 265 270
 Ser Lys Thr Asp Glu Lys Asn Phe Leu His Ser Thr Ser Thr His Gln
 275 280 285
 Lys Thr Lys Ser Ala Ser Ser Leu Tyr Arg Arg Ser Phe Ile Ser Leu
 290 295 300
 Arg Gly Ser Ser Ser Ser Asn Ala Ser Ser Ala Lys Ser Pro Ser Asn
 305 310 315 320
 Ile Lys Leu Ser Ile Pro Ala Arg Pro His Ser Ile Ile Glu Ser Asn
 325 330 335
 Ser Thr Leu Thr Lys Ser Ala Ser Pro Pro Ala Ser Pro Ser Tyr Pro
 340 345 350
 Ser Ile Phe Arg Arg His His Lys Ser Ser Ser Ser Glu Ser Ser Leu
 355 360 365
 Ile Asn Ser Leu Phe Gly Ser Gly Ile Gly Glu Glu Ala Pro Thr Lys
 370 375 380
 Pro Asn Pro Gln Gly His Ser Leu Ser Ser Glu Asn Leu Ala Lys Gly
 385 390 395 400
 Lys Ser Lys His Tyr Glu Thr Asn Val Ser Ser Pro Leu Lys Gln Ser
 405 410 415
 Ser Leu Pro Thr Ser Asp Asp Lys Gly Asn Leu Trp Asn Lys Phe Lys
 420 425 430
 Arg Lys Ser Gln Ile Gly Val Pro Ser Pro Asn Thr Val Ala Tyr Val
 435 440 445
 Thr Ser Gln Glu Thr Pro Ser Leu Lys Ser Asn Ser Ser Thr Ala Thr
 450 455 460
 Leu Thr Val Gln Thr Ala Asp Val Asn Ile Pro Ser Pro Ser Ser Ser
 465 470 475 480
 Pro Pro Pro Ile Pro Lys Thr Ala Asn Arg Ser Leu Glu Val Ile Ser
 485 490 495

WALLACH21(INL2).ST25.txt

Thr Glu Asp Thr Pro Lys Ile Ser Ser Thr Thr Ala Ser Phe Lys Glu
 500 505 510
 Thr Tyr Pro Asp Cys Ile Asn Pro Asp Lys Thr Val Pro Val Pro Val
 515 520 525
 Asn Asn Gln Lys Tyr Ser Val Lys Asn Phe Leu Leu Asp Gln Lys Phe
 530 535 540
 Tyr Pro Leu Lys Lys Thr Gly Leu Asn Asp Ser Glu Asn Lys Tyr Ile
 545 550 555 560
 Leu Val Thr Lys Asp Asn Val Ser Phe Val Pro Leu Asn Leu Lys Ser
 565 570 575
 Val Ala Lys Leu Ser Ser Phe Lys Glu Ser Ala Leu Thr Lys Leu Gly
 580 585 590
 Ile Asn His Lys Asn Val Thr Phe His Met Thr Asp Phe Asp Cys Asp
 595 600 605
 Ile Gly Ala Ala Ile Pro Asp Asp Thr Leu Glu Phe Leu Lys Lys Ser
 610 615 620
 Leu Phe Leu Asn Thr Ser Gly Lys Ile Tyr Ile Lys Asp Gln Met Lys
 625 630 635 640
 Leu Gln Gln Lys Pro Lys Pro Ala Pro Leu Thr Ser Glu Asn Asn Val
 645 650 655
 Pro Leu Lys Ser Val Lys Ser Lys Ser Ser Met Arg Ser Gly Thr Ser
 660 665 670
 Ser Leu Ile Ala Ser Thr Asp Asp Val Ser Ile Val Thr Ser Ser Ser
 675 680 685
 Asp Ile Thr Ser Phe Asp Glu His Ala Ser Gly Ser Gly Arg Arg Tyr
 690 695 700
 Pro Gln Thr Pro Ser Tyr Tyr Tyr Asp Arg Val Ser Asn Thr Asn Pro
 705 710 715 720
 Thr Glu Glu Leu Asn Tyr Trp Asn Ile Lys Glu Val Leu Ser His Glu
 725 730 735
 Glu Asn Ala Pro Lys Met Val Phe Lys Thr Ser Pro Lys Leu Glu Leu
 740 745 750
 Asn Ile Pro Asp Lys Gly Ser Lys Leu Asn Ile Pro Thr Pro Ile Thr
 755 760 765

WALLACH21(INL2).ST25.txt

Glu Asn Glu Ser Lys Ser Ser Phe Gln Val Leu Arg Lys Asp Glu Gly
 770 775 780
 Thr Glu Ile Asp Phe Asn His Arg Arg Glu Ser Pro Tyr Thr Lys Pro
 785 790 795 800
 Glu Leu Ala Pro Lys Arg Glu Ala Pro Lys Pro Pro Ala Asn Thr Ser
 805 810 815
 Pro Gln Arg Thr Leu Ser Thr Ser Lys Gln Asn Lys Pro Ile Arg Leu
 820 825 830
 Val Arg Ala Ser Thr Lys Ile Ser Arg Ser Lys Arg Ser Lys Pro Leu
 835 840 845
 Pro Pro Gln Leu Leu Ser Ser Pro Ile Glu Ala Ser Ser Ser Ser Pro
 850 855 860
 Asp Ser Leu Thr Ser Ser Tyr Thr Pro Ala Ser Thr His Val Leu Ile
 865 870 875 880
 Pro Gln Pro Tyr Lys Gly Ala Asn Asp Val Met Arg Arg Leu Lys Thr
 885 890 895
 Asp Gln Asp Ser Thr Ser Thr Ser Pro Ser Leu Lys Met Lys Gln Lys
 900 905 910
 Val Asn Arg Ser Asn Ser Thr Val Ser Thr Ser Asn Ser Ile Phe Tyr
 915 920 925
 Ser Pro Ser Pro Leu Leu Lys Arg Gly Asn Ser Lys Arg Val Val Ser
 930 935 940
 Ser Thr Ser Ala Ala Asp Ile Phe Glu Glu Asn Asp Ile Thr Phe Ala
 945 950 955 960
 Asp Ala Pro Pro Met Phe Asp Ser Asp Asp Ser Asp Asp Asp Ser Ser
 965 970 975
 Ser Ser Asp Asp Ile Ile Trp Ser Lys Lys Lys Thr Ala Pro Glu Thr
 980 985 990
 Asn Asn Glu Asn Lys Lys Asp Glu Lys Ser Asp Asn Ser Ser Thr His
 995 1000 1005
 Ser Asp Glu Ile Phe Tyr Asp Ser Gln Thr Gln Asp Lys Met Glu
 1010 1015 1020
 Arg Lys Met Thr Phe Arg Pro Ser Pro Glu Val Val Tyr Gln Asn
 1025 1030 1035

WALLACH21(INL2).ST25.txt

Leu Glu Lys Phe Phe Pro Arg Ala Asn Leu Asp Lys Pro Ile Thr
 1040 1045 1050
 Glu Gly Ile Ala Ser Pro Thr Ser Pro Lys Ser Leu Asp Ser Leu
 1055 1060 1065
 Leu Ser Pro Lys Asn Val Ala Ser Ser Arg Thr Glu Pro Ser Thr
 1070 1075 1080
 Pro Ser Arg Pro Val Pro Pro Asp Ser Ser Tyr Glu Phe Ile Gln
 1085 1090 1095
 Asp Gly Leu Asn Gly Lys Asn Lys Pro Leu Asn Gln Ala Lys Thr
 1100 1105 1110
 Pro Lys Arg Thr Lys Thr Ile Arg Thr Ile Ala His Glu Ala Ser
 1115 1120 1125
 Leu Ala Arg Lys Asn Ser Val Lys Leu Lys Arg Gln Asn Thr Lys
 1130 1135 1140
 Met Trp Gly Thr Arg Met Val Glu Val Thr Glu Asn His Met Val
 1145 1150 1155
 Ser Ile Asn Lys Ala Lys Asn Ser Lys Gly Glu Tyr Lys Glu Phe
 1160 1165 1170
 Ala Trp Met Lys Gly Glu Met Ile Gly Lys Gly Ser Phe Gly Ala
 1175 1180 1185
 Val Tyr Leu Cys Leu Asn Val Thr Thr Gly Glu Met Met Ala Val
 1190 1195 1200
 Lys Gln Val Glu Val Pro Lys Tyr Ser Ser Gln Asn Glu Ala Ile
 1205 1210 1215
 Leu Ser Thr Val Glu Ala Leu Arg Ser Glu Val Ser Thr Leu Lys
 1220 1225 1230
 Asp Leu Asp His Leu Asn Ile Val Gln Tyr Leu Gly Phe Glu Asn
 1235 1240 1245
 Lys Asn Asn Ile Tyr Ser Leu Phe Leu Glu Tyr Val Ala Gly Gly
 1250 1255 1260
 Ser Val Gly Ser Leu Ile Arg Met Tyr Gly Arg Phe Asp Glu Pro
 1265 1270 1275
 Leu Ile Lys His Leu Thr Thr Gln Val Leu Lys Gly Leu Ala Tyr
 1280 1285 1290

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Leu His Ser Lys Gly Ile Leu His Arg Asp Met Lys Ala Asp Asn
1295 1300 1305

Leu Leu Leu Asp Gln Asp Gly Ile Cys Lys Ile Ser Asp Phe Gly
1310 1315 1320

Ile Ser Arg Lys Ser Lys Asp Ile Tyr Ser Asn Ser Asp Met Thr
1325 1330 1335

Met Arg Gly Thr Val Phe Trp Met Ala Pro Glu Met Val Asp Thr
1340 1345 1350

Lys Gln Gly Tyr Ser Ala Lys Val Asp Ile Trp Ser Leu Gly Cys
1355 1360 1365

Ile Val Leu Glu Met Phe Ala Gly Lys Arg Pro Trp Ser Asn Leu
1370 1375 1380

Glu Val Val Ala Ala Met Phe Lys Ile Gly Lys Ser Lys Ser Ala
1385 1390 1395

Pro Pro Ile Pro Glu Asp Thr Leu Pro Leu Ile Ser Gln Ile Gly
1400 1405 1410

Arg Asn Phe Leu Asp Ala Cys Phe Glu Ile Asn Pro Glu Lys Arg
1415 1420 1425

Pro Thr Ala Asn Glu Leu Leu Ser His Pro Phe Ser Glu Val Asn
1430 1435 1440

Glu Thr Phe Asn Phe Lys Ser Thr Arg Leu Ala Lys Phe Ile Lys
1445 1450 1455

Ser Asn Asp Lys Leu Asn Ser Ser Lys Leu Arg Ile Thr Ser Gln
1460 1465 1470

Glu Asn Lys Thr Glu
1475

<210> 19
<211> 672
<212> PRT
<213> Mus sp.

<400> 19

Met val Thr Ala val Pro Ala val Phe Ser Lys Leu val Thr Met Leu
1 5 10 15

Asn Ala Ser Gly Ser Thr His Phe Thr Arg Met Arg Arg Arg Leu Met
20 25 30

Ala Ile Ala Asp Glu val Glu Ile Ala Glu val Ile Gln Leu Gly val
Page 43

35

Glu Asp Thr Val Asp Gly His Gln Asp Ser Leu Gln Ala Val Ala Pro
50 55 60

Thr Ser Cys Leu Glu Asn Ser Ser Leu Glu His Thr Val His Arg Glu
65 70 75 80

Lys Thr Gly Lys Gly Leu Ser Ala Thr Arg Leu Ser Ala Ser Ser Glu
85 90 95

Asp Ile Ser Asp Arg Leu Ala Gly Val Ser Val Gly Leu Pro Ser Ser
100 105 110

Thr Thr Thr Glu Gln Pro Lys Pro Ala Val Gln Thr Lys Gly Arg Pro
115 120 125

His Ser Gln Cys Leu Asn Ser Ser Pro Leu Ser His Ala Gln Leu Met
130 135 140

Phe Pro Ala Pro Ser Ala Pro Cys Ser Ser Ala Pro Ser Val Pro Asp
145 150 155 160

Ile Ser Lys His Arg Pro Gln Ala Phe Val Pro Cys Lys Ile Pro Ser
165 170 175

Ala Ser Pro Gln Thr Gln Arg Lys Phe Ser Leu Gln Phe Gln Arg Asn
180 185 190

Cys Ser Glu His Arg Asp Ser Asp Gln Leu Ser Pro Val Phe Thr Gln
195 200 205

Ser Arg Pro Pro Pro Ser Ser Asn Ile His Arg Pro Lys Pro Ser Arg
210 215 220

Pro Val Pro Gly Ser Thr Ser Lys Leu Gly Asp Ala Thr Lys Ser Ser
225 230 235 240

Met Thr Leu Asp Leu Gly Ser Ala Ser Arg Cys Asp Asp Ser Phe Gly
245 250 255

Gly Gly Gly Asn Ser Gly Asn Ala Val Ile Pro Ser Asp Glu Thr Val
260 265 270

Phe Thr Pro Val Glu Asp Lys Cys Arg Leu Asp Val Asn Thr Glu Leu
275 280 285

Asn Ser Ser Ile Glu Asp Leu Leu Glu Ala Ser Met Pro Ser Ser Asp
290 295 300

Thr Thr Val Thr Phe Lys Ser Glu Val Ala Val Leu Ser Pro Glu Lys
Page 44

305 310 315 320
 Ala Glu Asn Asp Asp Thr Tyr Lys Asp Asp Val Asn His Asn Gln Lys
 325 330 335
 Cys Lys Glu Lys Met Glu Ala Glu Glu Glu Glu Ala Leu Ala Ile Ala
 340 345 350
 Met Ala Met Ser Ala Ser Gln Asp Ala Leu Pro Ile Val Pro Gln Leu
 355 360 365
 Gln Val Glu Asn Gly Glu Asp Ile Ile Ile Ile Gln Gln Asp Thr Pro
 370 375 380
 Glu Thr Leu Pro Gly His Thr Lys Ala Lys Gln Pro Tyr Arg Glu Asp
 385 390 395 400
 Ala Glu Trp Leu Lys Gly Gln Gln Ile Gly Leu Gly Ala Phe Ser Ser
 405 410 415
 Cys Tyr Gln Ala Gln Asp Val Gly Thr Gly Thr Leu Met Ala Val Lys
 420 425 430
 Gln Val Thr Tyr Val Arg Asn Thr Ser Ser Glu Gln Glu Glu Val Val
 435 440 445
 Glu Ala Leu Arg Glu Glu Ile Arg Met Met Gly His Leu Asn His Pro
 450 455 460
 Asn Ile Ile Arg Met Leu Gly Ala Thr Cys Glu Lys Ser Asn Tyr Asn
 465 470 475 480
 Leu Phe Ile Glu Trp Met Ala Gly Gly Ser Val Ala His Leu Leu Ser
 485 490 495
 Lys Tyr Gly Ala Phe Lys Glu Ser Val Val Ile Asn Tyr Thr Glu Gln
 500 505 510
 Leu Leu Arg Gly Leu Ser Tyr Leu His Glu Asn Gln Ile Ile His Arg
 515 520 525
 Asp Val Lys Gly Ala Asn Leu Leu Ile Asp Ser Thr Gly Gln Arg Leu
 530 535 540
 Arg Ile Ala Asp Phe Gly Ala Ala Ala Arg Leu Ala Ser Lys Gly Thr
 545 550 555 560
 Gly Ala Gly Glu Phe Gln Gly Gln Leu Leu Gly Thr Ile Ala Phe Met
 565 570 575
 Ala Pro Glu Val Leu Arg Gly Gln Gln Tyr Gly Arg Ser Cys Asp Val
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580

585

590

Trp Ser Val Gly Cys Ala Ile Ile Glu Met Ala Cys Ala Lys Pro Pro
595 600 605

Trp Asn Ala Glu Lys His Ser Asn His Leu Ala Leu Ile Phe Lys Ile
610 615 620

Ala Ser Ala Thr Thr Ala Pro Ser Ile Pro Ser His Leu Ser Pro Gly
625 630 635 640

Leu Arg Asp Val Ala Val Arg Cys Leu Glu Leu Gln Pro Gln Asp Arg
645 650 655

Pro Pro Ser Arg Glu Leu Leu Lys His Pro Val Phe Arg Thr Thr Trp
660 665 670

<210> 20
<211> 1314
<212> PRT
<213> Homo sapiens

<400> 20

Met Met Met Asp Ile Leu Asn Thr Gln Gln Gln Lys Ala Ala Glu Gly
1 5 10 15

Gly Arg Val Leu Ala Pro His Thr Ile Ser Ser Lys Leu Val Lys Arg
20 25 30

Leu Ser Ser His Ser Ser His Lys Leu Ser Arg Ser Asp Leu Lys Ala
35 40 45

Leu Gly Gly Ser Glu Thr Ile Ser Asp Gly Pro Ser Gln Leu Thr Phe
50 55 60

Lys Asp Arg Tyr Val Phe Asn Glu Ser Leu Tyr Leu Lys Lys Leu Lys
65 70 75 80

Lys Thr Ala Leu Asp Asp Tyr Tyr Thr Arg Gly Ile Lys Leu Thr Asn
85 90 95

Arg Tyr Glu Glu Asp Asp Gly Asp Asp Glu Ile Ile Arg Leu Ser Asn
100 105 110

Gly Asp Arg Ile Asp Glu Asp Leu His Ser Gly Val Lys Phe Phe Ser
115 120 125

Thr Thr Pro Tyr Cys Arg Lys Met Arg Ser Asp Ser Asp Glu Leu Ala
130 135 140

Trp Asn Glu Ile Ala Thr Glu Arg Phe Lys Trp Gln Ser Met Leu Ala
145 150 155 160

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Arg Val Leu Lys Gly Asp Ile Val Lys Gly Glu Lys Thr Arg Ile Ala
165 170 175

Asn Gln Val Lys Lys Pro Gly Leu Asn Lys Glu Leu Ser Asp Glu Ile
180 185 190

Trp Leu Glu Leu Lys Ala Trp Leu Asn Gly Arg Thr Met Gln Glu Met
195 200 205

Glu Gln Ser Leu Thr Tyr Leu Arg Asp Ser Ser Asp Ser Val Phe Glu
210 215 220

Glu Ile Met Lys Phe Gln Ile Pro Gln Gly Lys Ile Leu Ser Leu Asp
225 230 235 240

Ala Leu Glu Ala Ile Leu Gln Asp Leu Met Asn Arg Tyr His Ser Val
245 250 255

Val Ser Tyr Trp Pro Asn Leu Lys Lys Met Tyr Lys Asp Lys Pro Ile
260 265 270

Thr Asn Thr Ala Glu Phe Thr Ala Arg Ile Asp Val Met Asn Ser Trp
275 280 285

Leu Asn Phe Lys Thr Asn Leu Thr Leu Arg Arg Gln Glu Leu Asp Asp
290 295 300

Trp Ile Asn Arg Phe Ser Pro Ile Ser Ser Ser Asp Asn Cys Gln Glu
305 310 315 320

Asp Phe Asp Gly Val Pro Gln Trp Asn Cys Lys Met Lys Ile Leu Ala
325 330 335

Glu Gln Leu Met Lys Glu Lys Asn Ile Glu Ser Ile Phe Gln Lys Lys
340 345 350

Ile Phe Tyr Pro Leu Ser Pro Trp Met Phe Lys Leu Lys Leu His Phe
355 360 365

Ile Val Tyr Arg Glu Thr Leu Thr Lys Met Asn Ile Lys Tyr Pro Tyr
370 375 380

Glu Arg Leu Arg Ser Leu Leu Ala Phe Pro Val Tyr Leu Ile Lys Glu
385 390 395 400

Val Ile Leu Thr Arg Leu Ser Tyr Ala Arg Lys Leu Lys Asn Pro Thr
405 410 415

Met Met Met Ile Asp Gln Met Ile Asp Asp Phe Asn Ala Phe Ile Arg
420 425 430

WALLACH21(INL2).ST25.txt

Leu Ser Val Gln Leu Lys Tyr Thr Leu Thr Lys Tyr Cys Ser Asn Leu
 435 440 445
 Pro Phe Asp Val Asp Phe Asp Pro Thr Phe Glu Asn Thr Val Ile Glu
 450 455 460
 Ala Ile Arg Tyr Leu Phe Phe Leu Leu Asn Leu Lys Leu Ile Asp Ser
 465 470 475 480
 Ser Lys Gln Asn Phe Lys Ala Pro Asp Leu Leu Lys Tyr Trp Asp
 485 490 495
 His Leu Lys Asn Thr Gly His Tyr Ile Asn Gly Ala Glu Thr Val Ile
 500 505 510
 Pro Asn Glu Phe Leu Lys Leu Thr Leu Arg Leu Val His Lys Leu Gln
 515 520 525
 Phe Tyr Leu Leu Lys Gln Gln Asn Phe Pro Pro Thr Phe Ala Asn Ala
 530 535 540
 Ser Glu Ala Glu Lys Trp Leu Ser Ser Ile Phe Glu Asn Leu Gly Ala
 545 550 555 560
 Met Lys Arg Lys Leu Asn Arg Phe Ser Asn Ile Leu Val Lys Ala Phe
 565 570 575
 Gln Asn Ser Ala Val Tyr Gln Ile Asn His Asn Ala Gln Leu Val Lys
 580 585 590
 Lys Leu Lys Asp Ala His Tyr Phe Leu Val Tyr Ser Gly Asn Thr Phe
 595 600 605
 Glu Ser Ser Gly Val Tyr Met Phe Ala Ala Pro Glu Leu Leu Gly Cys
 610 615 620
 Asp Asn Asp Thr Ile Leu Arg Ile Leu Arg Asn Lys Ser Ile Gly Cys
 625 630 635 640
 Asp Leu Val Pro Lys Leu Asp Ile Gly Asn Asn Leu Asn Val Tyr Asp
 645 650 655
 Ile Thr Thr Lys Glu Thr Asp Leu Asn Ile Leu Val Ser Lys Gly Glu
 660 665 670
 Asp Ser Lys Gly Ile Pro Tyr Tyr Arg Val Val Ala Asn Ser Ser Ser
 675 680 685
 Asp Leu Asp Arg His Ala His Gln Ser Lys Lys Lys Asn Phe Ser Thr
 690 695 700

WALLACH21(INL2).ST25.txt

Asp Pro Phe Asp Gln His Leu Asp Glu Lys Asn Asn Glu Val Phe Glu
 705 710 720
 Leu Glu Val Ala Leu Ser Ser Leu Gly Ala Leu Val Val Leu Tyr Pro
 725 730 735
 Gly Glu Pro Val Val Trp Asp Gly Pro Val Tyr Lys Leu Pro Gly Asn
 740 745 750
 Asn Leu Phe Ala Ser Asn Glu Met Asp Leu Gly Lys Ile Gly Asn Pro
 755 760 765
 Asn Thr Leu Ile Leu Leu Asn Gln Gly Ser Asn Tyr Ala Leu Thr Tyr
 770 775 780
 Gln Ile Asp Lys Phe Asn Gln Thr Val Gly Asp Ser Val Ser Phe Ile
 785 790 795
 Glu Lys Arg Cys Ser Leu Asn Ser Ile Glu Ser Ser Leu Gln Lys Ile
 805 810 815
 Asn Lys Ala Tyr Tyr Lys Leu Thr Tyr Thr Val Leu Asn Asn Tyr Lys
 820 825 830
 Gly Ile Leu Gly Ser Phe Met Lys Gln Cys Pro Gly Asn Glu Leu Leu
 835 840 845
 Asn Ser Ile Phe Met Phe Gly Arg Asp Phe Gly Arg Ser Phe Leu Lys
 850 855 860
 Tyr Asn Ala Phe Ser Ser Lys Arg Lys Tyr Val Ile Ile Phe Leu Met
 865 870 875
 Val Lys Leu Gly Met Asn Trp Leu Lys Phe Leu Val Glu Glu Cys Asp
 885 890 895
 Pro Thr Asp Gln Arg Thr Phe Arg Trp Cys Val Leu Ala Met Asp Phe
 900 905 910
 Ala Met Gln Met Thr Ser Gly Tyr Asn Ile Leu Ala Leu Asn Val Lys
 915 920 925
 Gln Phe Gln Glu Leu Lys Glu Arg Val Ser Val Cys Met Ser Leu Leu
 930 935 940
 Ile Ser His Phe Asp Val Met Gly Ala Arg Ala Thr Glu Ala Glu Asn
 945 950 955 960
 Gly Met Gln Gln Ala Arg Leu Asn Ile Asp Thr Glu Glu Asn Ile Asp
 965 970 975

WALLACH21(INL2).ST25.txt

Glu Glu Ala Thr Leu Glu Ile Asn Ser Arg Leu Arg Leu Glu Ala Ile
980 985 990

Lys Thr Leu Glu Lys Thr Met Lys Arg Asn Pro Arg Gln Met Gly Lys
995 1000 1005

Val Leu Asp Ala Thr Asp Gln Gly Asn Lys Tyr Leu Leu Ser Leu
1010 1015 1020

Ala Ser Ser Leu Ser Asn Val Ser Met Arg Trp Gln Lys Arg Ser
1025 1030 1035

Phe Ile Gly Gly Gly Thr Phe Gly Gln Val Tyr Ser Ala Ile Asn
1040 1045 1050

Leu Glu Asn Gly Glu Ile Leu Ala Val Lys Glu Ile Lys Ile His
1055 1060 1065

Asp Thr Thr Thr Met Lys Lys Ile Phe Pro Leu Ile Lys Glu Glu
1070 1075 1080

Met Thr Val Leu Glu Met Leu Asn His Pro Asn Ile Val Gln Tyr
1085 1090 1095

Tyr Gly Val Glu Val His Arg Asp Lys Val Asn Ile Phe Met Glu
1100 1105 1110

Tyr Cys Glu Gly Gly Ser Leu Ala Ser Leu Leu Asp His Gly Arg
1115 1120 1125

Ile Glu Asp Glu Met Val Thr Gln Val Tyr Thr Phe Glu Leu Leu
1130 1135 1140

Glu Gly Leu Ala Tyr Leu His Gln Ser Gly Val Val His Arg Asp
1145 1150 1155

Ile Lys Pro Glu Asn Ile Leu Leu Asp Phe Asn Gly Ile Ile Lys
1160 1165 1170

Tyr Val Asp Phe Gly Thr Ala Arg Thr Val Val Gly Ser Arg Thr
1175 1180 1185

Arg Thr Val Arg Asn Ala Ala Val Gln Asp Phe Gly Val Glu Thr
1190 1195 1200

Lys Ser Leu Asn Glu Met Met Gly Thr Pro Met Tyr Met Ala Pro
1205 1210 1215

Glu Thr Ile Ser Gly Ser Ala Val Lys Gly Lys Leu Gly Ala Asp
1220 1225 1230

WALLACH21(INL2).ST25.txt

Asp Val Trp Ala Leu Gly Cys Val Val Leu Glu Met Ala Thr Gly
1235 1240 1245

Arg Arg Pro Trp Ser Asn Leu Asp Asn Glu Trp Ala Ile Met Tyr
1250 1255 1260

His Val Ala Ala Gly Arg Ile Pro Gln Leu Pro Asn Arg Asp Glu
1265 1270 1275

Met Thr Ala Ala Gly Arg Ala Leu Leu Gly Lys Val Phe Gly Ser
1280 1285 1290

Arg Pro His Tyr Glu Gly Tyr Cys Cys Gly Thr Thr Asp Arg Pro
1295 1300 1305

Leu Asp Asp Thr Asn Pro
1310

<210> 21
<211> 4
<212> PRT
<213> Artificial

<220>
<223> synthetic

<220>
<221> misc_feature
<222> (1)..(1)
<223> Residue at postion 1 is modified by a N-terminal acetyl group.

<220>
<221> misc_feature
<222> (4)..(4)
<223> Residue at postion 4 is modified by a C-terminal
4-methyl-coumaryl-7-amide group.

<400> 21

Asp Glu Val Asp
1

<210> 22
<211> 4
<212> PRT
<213> Artificial

<220>
<223> synthetic

<220>
<221> misc_feature
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<223> Residue at postion 1 is modified by a N-terminal acetyl group.

<220>
<221> misc_feature

WALLACH21(INL2).ST25.txt

<222> (4)..(4)

<223> Residue at postion 1 is modified by a C-terminal
chloromethylketone group.

<400> 22

Tyr Val Ala Asp

1